

Appl. No. 09/575,599

Amd dated November 24, 2003

Reply to Office Action of September 24, 2003

REMARKS

Claim Rejection Under 35 U.S.C. § 102

In the Office Action, the Examiner again rejected claims 1-3, 5-8, 10-13, 15, 16, 25-29, and 31-34 under 35 U.S.C. 102(b) as being anticipated by Johnson et al. (US 6,067,525). Applicant respectfully traverses the rejection. Johnson et al. ("Johnson") fails to disclose each and every feature of the claimed invention, as required by 35 U.S.C. 102(b), and provides no teaching that would have suggested the desirability of modification to include such features.

In general, the present application describes a system for statistically quantifying and mathematically modeling sales opportunities in order to forecast revenue and generate solution-oriented sales plans. As generally described, the system includes a database that stores a mathematical model as a plurality of related objects that represent of business opportunities and associated conditions. The conditions objectively represent activities performed by a sales organization and other facts that impact achieving the business opportunities. A statistical engine analyzes the database and calculates a set of probabilities representing the probability of successfully achieving the business opportunities. As further described in the present application, the database stores a set of estimate probabilities received from a user representing preconceived probabilities for achieving the opportunities. The statistical engine applies Bayesian statistical techniques to calculate the probabilities of success as a function of the estimate probabilities and input data received from the sale organization. A marketing engine generates a sales plan as a function of the probability set, and a reporting engine generates a revenue report as a function of the probability set. In this manner, the invention avoids the subjective input conventionally relied upon for revenue forecasting.

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Applicant's claim 1 recites:

I. *A method comprising:*

storing in a database data defining a mathematical model having a plurality of related objects that represent business opportunities and conditions associated with achieving the business opportunities;

receiving input data from a plurality of users, wherein the input data indicates a status of at least one of the conditions associated with one of the business opportunities; and

generating a probability set indicating the probability of successfully achieving the business opportunities as a function of the input data and the mathematical model.

The Examiner asserts that Johnson teaches each and every element of Applicant's claim 1. Johnson indeed describes a sales force automation system. However, as discussed in Applicant's previous response, Johnson fails to provide an enabling disclosure with respect to techniques for mathematically modeling sales opportunities in order to forecast revenue and generate solution-oriented sales plans. In fact, it appears that the Examiner has piecemealed unrelated portions of Johnson in rejecting Applicant's claim 1. Moreover, these portions of Johnson are nothing more than vague statements that certainly do not enable one skilled in the art to make and use the invention as recited in Applicant's claim 1, which is required for a finding of anticipation.¹

As one example, Johnson does not provide an enabling disclosure of a database storing a mathematical model having a plurality of related objects that represent business opportunities and conditions associated with achieving the business opportunities, as recited by Applicant's claim 1. As recited in claim 1, Applicant's claimed invention defines a mathematical model having objects that represent the business opportunities and the conditions associated with achieving the business opportunities. As described in detail within Applicant's disclosure, these conditions objectively represent activities performed by a sales organization and other facts that impact the achievement of the business opportunities. As one example, conditions may be

¹ PPG Industries, Inc v. Guardian Industries Corp. 75 F.3d 1558, 37 USPQ2d 1618 (Fed. Cir. 1996).

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defined to characterize the technology requirements of the target customer, and probabilities for achieving the business opportunities may be assigned based on the conditions.

Moreover, Johnson fails to teach or suggest generating a probability set indicating the probabilities of achieving the business opportunities as a function of the input data and the mathematical model, as further recited by Applicant's claim 1.

In rejecting Applicant's claim 1, the Examiner asserts that Johnson discloses storing in a database a mathematical model having a plurality of related objects that represent business opportunities and conditions associated with achieving the business opportunities. For support of this assertion, the Examiner first refers to a "data and formula matrix used to calculate probability of closing a sales opportunities" described in passing on column 26, lines 15-18. Johnson, however, provides absolutely no details as to the content, construction or application of the "matrix." Consequently, the Examiner's conclusion that this matrix represents a mathematical model is erroneous and not founded on substantial evidence in the record.

The clear error of this conclusion is exposed by the Examiner's reliance of column 4, lines 35-40 of Johnson for the proposition that this "matrix" defines a model having a plurality of related objects that represent business opportunities and conditions associated with achieving the business opportunities. In particular, this portion of Johnson relied upon by the Examiner is entirely unrelated to the "data and formula matrix." In contrast, this passage of Johnson generally describes lead and sales information used to aid in identifying new customers and not conditions associated with successfully achieving current business opportunities. In particular, Johnson specifically states that "sales information ... may also be used in conjunction with lead generation component to identify potential customers. For example, such information may be used to generate an electronic mailing to potential leads." Consequently, the "sales information and lead generation" described by Johnson and relied upon by the Examiner in no way represents a set of the business opportunities and associated conditions for achieving the business opportunities from which a revenue forecast can be statistically generated. Moreover, this information is not even maintained with the "data and formula matrix." Thus, the Examiner's characterization of the "data and formula matrix" of Johnson as defining a model having a plurality of related objects that represent business opportunities and conditions associated with achieving the business opportunities is unsupported by substantial evidence. Johnson provides

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no details as to how the matrix could, if at all, be applied to mathematically model and statistically forecast revenue.

In addition to these deficiencies, Johnson does not describe generating a probability set as a function of the input data and the mathematical model, wherein the probability set indicates the probabilities of achieving the business opportunities, as further recited in claim 1. With respect to this requirement of Applicant's claim 1, the Examiner asserted that Johnson teaches these elements and relied on column 21, lines 20-23. In this passage, however, Johnson simply states that "the system may automatically calculate the probability of closing the sale." There is no mention of calculating a probability set, and certainly no enabling disclosure as to how the set of probabilities could be calculated based on based on a mathematical model.

With respect to claim 7, Applicant's claim recites that the objects of the mathematical model comprise a set of business opportunity objects that are each interconnected by defined relationships with a set of corresponding condition objects. In other words, each business opportunity is mathematically modeled with a respective object and a set of corresponding condition objects. In rejecting claim 7, the Examiner states that "[i]nterconnected relationships are set up via the data and formula matrix in order to calculate the probabilities of closing a sale." To the contrary, Johnson is entirely devoid of any description relating to a mathematical model, as discussed more thoroughly above, and makes absolutely no mention of a mathematical model in which the objects of the mathematical model comprise a set of business opportunity objects that are each interconnected by defined relationships with a set of corresponding condition objects. The Examiner's assertion is not supported by substantial evidence. Johnson provides absolutely no details whatsoever as to the contents, construction or application of this "data and formula matrix," let alone describing the statistical modeling technique as claimed by the Applicant.

With respect to claim 10, the Examiner appears to change his interpretation of Johnson. Applicant's claim 10 recites adaptively adjusting the model in response to the input received from the users. In rejecting claim 10, the Examiner refers to expert system 2002 of Johnson that may "dynamically alter the rules in the event manager database to automatically initiate ... the identified events or actions similar subsequent sales activities." This passage of Johnson is referring to controlling the sales process in an automated manner and, in particular, with an

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expert system. This is entirely unrelated to updating a mathematical model used for generating probability sets for forecasting revenue. In column 35, Johnson discusses the use of a knowledge base to dynamically update the probability of sale in response to an event. Updating the probability based on events, however, is fundamentally different than updating the model itself, which controls how the probabilities are calculated.

For at least these reasons Johnson et al. fails to disclose each and every limitation set forth in claims 1-3, 5-8, 10-13, 15, 16, 25-29, and 31-34. Consequently, the Examiner has failed to establish a prima facie case for anticipation of Applicant's claims 1-3, 5-8, 10-13, 15, 16, 25-29, and 31-34 under 35 U.S.C. 102(b). Withdrawal of this rejection is requested.

Claim Rejection Under 35 U.S.C. § 103

In the Office Action, the Examiner rejected claim 4 under 35 U.S.C. 103(a) as being unpatentable over Johnson et al. (US 6,067,525), in view of Arbabi et al. (US 5,461,699). In addition, the Examiner rejected claims 9, 14, 17-24, 30 and 35-42 and 44-51 as being unpatentable over Johnson et al. (US 6,067,525), in view of Lazarus et al. (US 6,430,539). Applicant respectfully traverses these rejections. The applied references fail to disclose or suggest the inventions defined by Applicant's claims, and provide no teaching that would have suggested the desirability of modification to arrive at the claimed invention.

To establish a prima facie case of obviousness, three basic criteria must be met. First, the prior art reference or references when combined must teach or suggest each and every claim limitation. Second there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Finally, there must be a reasonable expectation of success.² The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on Applicant's disclosure. The reasoning set forth by the Examiner fails these well-established criteria.

The Court of Appeals for the Federal Circuit recently addressed the evidentiary standard required to uphold an obviousness rejection.³ Specifically, the Federal Circuit stated an Examiner's finding must be based upon substantial evidence, and not subjective musings or

² See MPEP 706.02(j) quoting *In re Vaick*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

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conjecture by the Examiner.⁴ Deficiencies in the evidentiary record cannot be cured by general conclusions such as "general knowledge" or "common sense."⁵ Accordingly, the Examiner cannot rely on unsupported, conclusory statements to close holes in the evidentiary record.⁶ Unless the Examiner can establish an evidentiary record based on concrete prior art references that establish that it would have been obvious to a person with ordinary skill in the art to incorporate the features of Applicant's dependent claims, the claims should be allowed.

In general, the Examiner asserts that Applicant's claims 9, 14, 17-24, 30 and 35-48 would have been obvious to one skilled in the art over Johnson in view of Lazurs. However, the Examiner erroneously proposes to modify the Johnson system to incorporate features that are not even taught or suggested by Lazurus or any other prior art of record. In other words, the conclusion of obviousness advanced by the Examiner relies on a features plucked directly from Applicants' own disclosure, rather than the prior art. Consequently, the Examiner's assertions are not based on substantial evidence of the record.

³ *In re Lee*, 61 USPQ2d 1430, (CAFC 2002).

⁴ *Id.*

⁵ *Id.*

⁶ *Id.*

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For example, Applicant's claim 17 recites

17. *A method comprising:*

storing a mathematical model in a database, wherein the model includes a plurality of objects representing business opportunities and associated conditions for achieving the business opportunities;

storing a first set of probabilities received from a user representing estimated probabilities for achieving the opportunities;

receiving input data from a sales organization indicating a status of at least one condition associated with one of the business opportunities; and

calculating a second set of probabilities as a function of the input data, the mathematical model, and the first set of probabilities, wherein second set of probabilities indicate the probability of successfully achieving the business opportunities.

In rejecting claim 17, the Examiner cites column 23, lines 18-35, and asserts that Lazarus discloses probability theory, including calculating a second probability as a function of a plurality of probabilities, based upon specific input data to calculate the probability of success. Based on this, the Examiner asserts that it would have been obvious to one skilled in the art to modify the Johnson system to achieve Applicant's invention as recited in claim 17. This assertion fails for a number of reasons.

First, the Examiner is once again construing Johnson in a manner that is inconsistent with his previous assertions with respect to his anticipation rejection under 102(b). Specifically, the Examiner asserts that Johnson teaches "storing a first set of probabilities received from a user representing estimated probabilities for achieving the opportunities," as recited by claim 17, yet refers to the exact same sections of Johnson that he previously relied upon with respect to claim 1 for the assertion that the Johnson system itself generates a probability set based on a mathematical model. How can this be? In actuality, Johnson does not teach or suggest either of these elements.

Second, the Examiner's interpretation of Lazarus is incorrect. In the cited passage, Lazarus does not disclose calculating a second set of probabilities for each of the business opportunities as a function of the input data, the mathematical model, and the first set of

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probabilities, wherein each of the second sets of probabilities indicates the probabilities of achieving the respective conditions associated with the corresponding business opportunity, as recited by claim 17. In fact, the cited passage does nothing more than express a probability distribution for a set of joint probability estimates \hat{P}_g . Expressing a set of probabilities as a polynomial, as described by Lazarus, does not teach or suggest calculating a second set of probabilities based on a mathematical model, a first set of probabilities received from a user and representing estimate probabilities for achieving the opportunities, and input data indicating a status of a least one condition associated with achieving the business opportunities, as required by claim 17 as amended. The Examiner has apparently confused the binomial distribution language of Lazarus with the posterior distribution language recited by Applicant's claims.

Moreover, it appears that the Examiner generally relies on Lazarus merely for the teachings of probability theory. However, Lazarus is generally directed to modeling consumer financial behavior, and is unrelated to forecasting revenue generated by a sale force using the statistically modeling techniques described and claimed by the Applicant. In particular, Lazarus describes techniques for modeling consumer financial behavior by application of consumer transaction data to predictive models associated with merchant segments. Neither Lazarus or Johnson describe Applicant's claimed invention for forecasting revenue using statistical analysis of a mathematical model in which the mathematical model has a plurality of related objects that represent business opportunities and conditions associated with achieving the business opportunities. Similarly, neither of the references describe a forecasting revenue by receiving a set of estimated probabilities for the conditions of the model from the model engineer, receiving input data from a sales organization indicating current statuses for the conditions, applying the model to compute a posterior distribution for the conditions based on both the estimated probabilities provided by the model engineer and the current statuses for the conditions, wherein second set of probabilities indicate the probability of successfully achieving the business opportunities, and generating a revenue forecast for the business opportunities based on the computed posterior distribution, as recited by Applicant's claim 49.

For at least these reasons, the Examiner has failed to establish a prima facie case for non-patentability of Applicant's claims 9, 14, 17-24, 30 and 35-42 and 44-51 under 35 U.S.C. 103(a). Withdrawal of this rejection is requested.

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CONCLUSION

All claims in this application are in condition for allowance. Applicant respectfully requests reconsideration and prompt allowance of all pending claims. Please charge any additional fees or credit any overpayment to deposit account number 50-1778. The Examiner is invited to telephone the below-signed attorney to discuss this application.

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